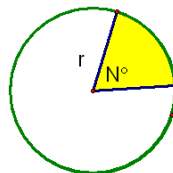
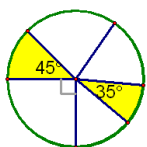


## 11-5 Geometric Probability



Area of Sector

$$A = \frac{N}{360} \pi r^2$$



Find the area of each sector.

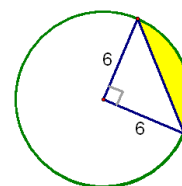
$$d = 18 \text{ in}$$

$$A = \frac{45}{360} \cdot 81\pi \approx 31.8 \text{ in}^2$$

$$A = \frac{35}{360} \cdot 81\pi \approx 24.7 \text{ in}^2$$

Find the area of the segment.

$$A_{\text{sector}} - A_{\Delta}$$



$$\frac{90}{360} 36\pi - \frac{1}{2} 6 \cdot 6$$

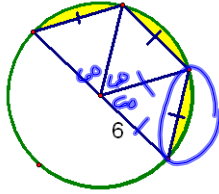
$$9\pi - 18$$

$$\boxed{10.3 \text{ u}^2}$$

Find the area of the shaded region.

$$3(A_{\text{sector}} - A_{\Delta})$$

$$\frac{5^2\sqrt{3}}{4}$$



$$\frac{60}{360} \cdot 36\pi - 9\sqrt{3}$$

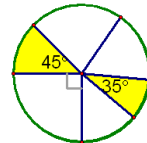
$$\frac{6\pi}{18.85} - 9\sqrt{3} \approx 3.3 \times 3$$

$$(9.84)^2$$

$$\text{Probability} = \frac{\# \text{ of successes}}{\# \text{ of outcomes}}$$

ex 1

What is the probability that a point (in the circle) chosen at random lies in the shaded region?



d = 18 in

$$P = \frac{A_{\text{shaded}}}{A_{\text{whole}}} = \frac{56.5}{(81\pi)} \approx .22$$

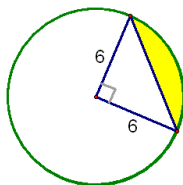
For sectors only

$$P = \frac{80}{360} = .22$$

$$\text{Probability} = \frac{\# \text{ of successes}}{\# \text{ of outcomes}}$$

What is the probability that a point (in the circle) chosen at random lies in the shaded region?

ex 2

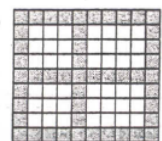


$$P = \frac{10.3}{(36\pi)} \approx .09$$

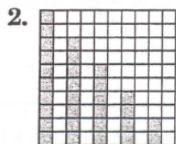
Worksheet examples.

$$P = \frac{48}{90} \approx .53$$

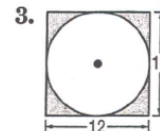
1.



$$P = \frac{30}{100} = .3$$

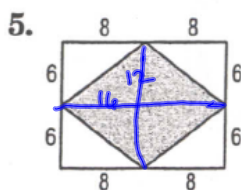


$$P = \frac{A_{sq} - A_{circle}}{A_{sq}}$$



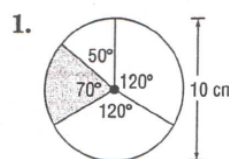
$$P = \frac{(144 - 36\pi)}{144} = .21$$

$$P = \frac{A_{rhombus}}{A_{rect}}$$



$$P = \frac{\frac{1}{2} 16 \cdot 12}{16 \cdot 12} = .5$$

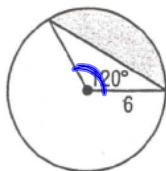
$$P = \frac{70}{360} = .19$$



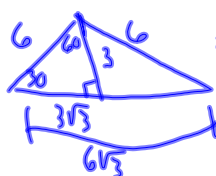
$$= \frac{\frac{N}{360} A_c}{A_c}$$

$$P = \frac{A_{\text{sector}} - A_{\Delta}}{A_{\text{circle}}}$$

4.



$$A_{\text{sector}} = \frac{120}{360} 36\pi = 12\pi$$



$$A_{\Delta} = \frac{1}{2} 6\sqrt{3} \cdot 3 = 9\sqrt{3}$$

$$P = \frac{(12\pi - 9\sqrt{3})}{(36\pi)}$$

$$P = .20$$

HW

p625-626

7, 10-12, 16-19